The graphs of air temperature show an inclination at night opposite the daytime. Notice that there is practically no difference between the black and white thermometers during the night and that in that period four thermometers at each level register 2° C. difference in the height of a man, his feet being colder than his head. The ground beneath is warmer than the air at any point above. I am unable to explain this anomalous condition. The temperature gradient is reversed at 4:30 p. m. A study of the graphs 3B and 3W of Figure 2 shows a chill at the ground surface itself and in the face of a bright sunlight. The phenomena can not be explained readily by air movement because there is very little movement, and the point of maximum temperature is only 30 cm. above the surface. In all the graphs the standard shade temperature corresponds closely but

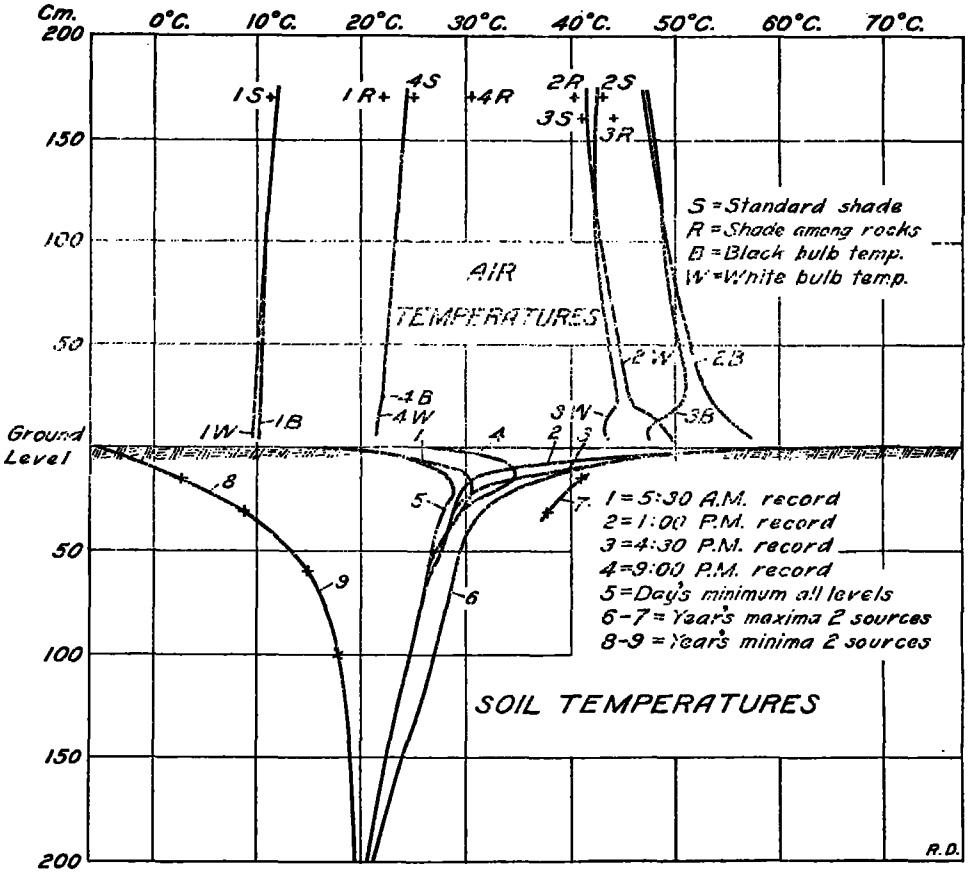

FIG. 2.—Curves of diurnal changes in soil and air temperatures.

with the upper levels recorded on the white thermometers. The heat-conserving action of the rocks is again shown by the shade readings taken among them at the same time.

Two applications are worth making. The terrific forces involved in the merely surface expansion and contraction of rock may be a very potent factor in their disintegration. The reversal of the temperature gradient, to whatever cause it may be due, may lay the foundation, for the later large displacement of air known as cold-air drainage on a level desert.

DAMAGE TO WIRE SERVICE BY HEAVY SNOWSTORM IN KANSAS.

A heavy fall of wet, clinging snow that fell on March 9–10, 1922, over a strip about 50 miles wide extending from the northeast corner of Kansas to the south central part, near Hutchinson, resulted in damage to telephone and telegraph lines almost without precedent in the State. Sleet and ice accumulations on wires have frequently broken down pole lines in past years, serious trouble of this nature due solely to snow was a new experience to linemen, even when it fell to a depth of a foot or more, as it did in the central counties during this storm.

The snow occurred with temperatures somewhat below freezing and a high wind, estimated at 45 miles an hour, that packed it solidly against the north side of wires, poles, and other objects. In the Hutchinson district, where the damage was most severe, a cone-shaped mass of snow projected along the north side of every pole. The wind also packed the snow against the north side of each wire until the weight of the accumulation was sufficient to turn it partly over, exposing another surface to the wind. In this way wires were turned back and forth until they were completely coated with cylinders of packed snow that in some cases measured 2½ inches in diameter.

A single copper wire, No. 12 gauge, N. B. S., 1 foot long, with its incasing cylinder of snow, was carefully removed by linemen of a telephone company after the storm and found to weigh a pound. With a 30-wire lead, which is not unusual in an important line, and poles at the standard distance of 130 feet, this would mean a weight of 3,900 pounds, or almost 2 tons, on each pole.

This immense weight at a time when a high wind was blowing broke off thousands of poles, and wires were also broken and tangled. The Southwestern Bell Telephone Co. reported a loss of 5,000 poles and an estimated damage of $200,000, while the Western Union Telegraph Co. and the United Telephone Co. were also heavy losers.

Hutchinson, the second largest city in the central portion of the State, was completely isolated, as far as wire service was concerned, for more than 24 hours and without service in its local telephone service for six days. Complete service in some of the less important leads in the district was not restored until more than two weeks after the storm.—*S. D. Flora.*